VIDEO
PRODUCTS
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MONTEST-VGA

VGA Pattern Generator

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Chapter 1 Introduction

MONTEST-VGA is a test pattern generator with VGA connector designed to be a used for the new generation of digital monitor products. MONTEST supports up to 20 resolutions and 34 patterns for you to test and calibrate a digital monitor. Furthermore, it also can improve the quality of digital monitor with side-by-side comparisons. Through the friendly interface and smart design, not only is the MONTEST easy to use but also you can reduce your test expenditure.

⚠Caution

To avoid and minimize the risk of damage to MONTEST, please pay attention to the safety instructions even though the MONTEST has been tested for conformance to safety requirements and certified for international use.

- Follow all instructions marked on the device during use.
- Do not attempt to maintain the device by yourself, any faults, please contact your vendor.
- Provide proper ventilation and air circulation and do not use near water.
- It is better to keep it in a dry environment.
- Only using the power adapter and connection cables that are supported with the device.
- After purchasing and before using the MONTEST the first time, please charge it continuously for more than 16 hours.
- It is better to charge the battery only when the battery power indicator indicates a low battery.
- The MONTEST will save the last setting values automatically.
- Do not use liquid or aerosol cleaners to clean the device.
- Always unplug the power to the device before cleaning.

1.1 Package Contents

- 1 VGA pattern generator
- 1 power adapter with DC 12V 1.25A, 4 replaceable plugs (for USA, UK, Europe and Australia DC plugs.)
- 1 user manual
- 1 VGA 1.2M cable (HD-15 Male to Male)

All packages have been checked carefully for their completeness and functionality before shipped. Please contact with your vendor if any items listed as above are missing or damaged.

1.2 Resolution

- Use for test and calibrating VGA video equipments.
- Use for test and calibrating VGA image input devices.
- Use for TV/Monitor product lines.

1.3 Features

- Intelligent functionality.
- With 162 MHz pixel frequency.
- Support total 38 timings. (up to UXGA)
- Support Sync Type: H/V (TTL), SOG.
- Low cost.
- Single interface easily use.
- Portable design, working time up to 6~8 hours by inside Re-chargeable battery.
- Auto Power-off on Battery mode.
- Provide total 34 patterns, Include: Color bar, Gray, Grid, Block…
- By 16x2 Character LCD and key buttons, easily control.

1.4 Specifications

Function	MONTEST-VGA
Video Output Connector	1 HD-15 Female
Select Switch	7
LCD Module: 16*2 Character Display	1
Max. Resolution	1600x1200 @ 60 Hz
Highest Pixel Frequency	162 MHz
Cable Distance	5M
Power Adapter (Min.)	DC 12V 1.25A
Housing	Plastic
Weight	385 g
Dimensions (LxWxH)	180x96x34 mm

1.5 Front Panel

1. **Video Output Port:** Connect to the attached Video cable.
2. **LCD Module:** 16*2 Character Display.
3. **Function Keys:** Depend on the different operation configuration will show you different functions of the keys.
4. “ ” **Return:** Return to up configuration page.
5. “ ” **Power On/Off:** Press for at least 3 seconds to power on/off the MONTEST.
6. **Power Jack:** Connect to the DC 12V 1.25A power adapter.

1.6 Side Panel

1.6.1 Video Output Port

Use for Video cable connector.

1.6.2 HD-15 Connector Pin Definition

Pin #	Signal	Pin #	Signal
1	Red video	11	NC
2	Green video	12	NC
3	Blue video	13	Horizontal sync
4	NC	14	Vertical sync
5	Ground	15	NC
6	Analog ground		
7	Analog ground		
8	Analog ground		
9	NC		
10	Ground		

1.6.3 Power Jack

Use for the DC 12V 1.25A power adapter. The **Power Jack** is on the right side of the device. MONTEST supports 4 replaceable plugs (for USA, UK, Europe and Australia DC plugs.)

Power Jack

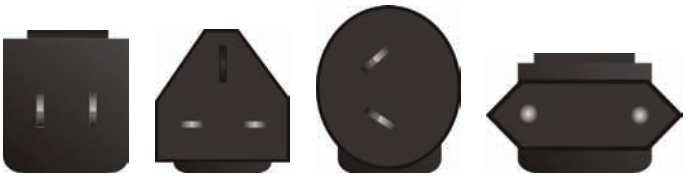
Chapter 2 Connection

2.1 Preparation

⚠Caution
Please power off the digital monitor and MONTEST before you begin the connection

2.1.1 Plugs

MONTEST-VGA supports you up to 4 replaceable plugs (for USA, UK, Europe and Australia DC plugs.). Please depend on where the location is to exchange the suitable plug.



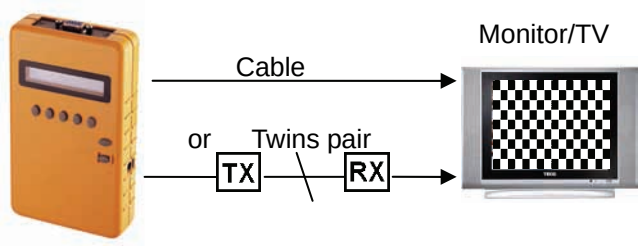
US Plug UK Plug AU Plug EU plug

2.1.2 Plug replacement

MONTEST-VGA supports a power adapter DC 12V 1.25A with a plastic ring to protect the connector. Before you to connect the adapter, you have to dismantle the plastic ring firstly. Refer to the pictures as below to dismantle the plastic ring.

⚠Caution
Please also to pull down the slider to exchange the suitable plug.

2.2 Connect MONTEST-VGA to Monitor



- Connect the attached DC adapter cable from MONTEST to the power source (outlet).
- Connect the VGA cable from MONTEST to the Monitor/TV.
- Power on the Monitor/TV.
- Press the power key of MONTEST for more than 3 seconds to power on/off the MONTEST.

⚠Caution

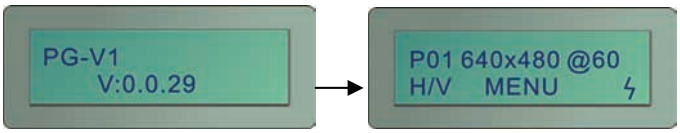
Please power off the Monitor/TV before making the connection.

Chapter 3 Operation

☞1. After pressing the power On/Off key for 2~3 seconds the MONTEST will sound a long **"beep"**.
2. Only with a valid key presss the MONTEST will sound a short confirmed **"beep"**.
3. The chosen option will blink.

3.1 Starting Status

After you pressing the **Powe**r key to power on the MONTEST, the LCD screen will show you the MONTEST version suddenly then show you the main screen as below (or previous setting values saved in the MONTEST's memory):



P01 640x480 @60

- **P01:** Pattern 01 (refer to Appendix B: **Pattern chart)**
- **640x480:** Resolution is 640X480
- **@60:** Refresh rate is 60Hz
- **"ϟ":** The power of battery is charging.

At the lower left of the LCD screen you will see the operated mode just as:

- **SOG:** Using MONTEST under SOG mode.
- **H/V:** Using MONTEST under H/V mode.

.

3.2 Power and Battery

The device is suited to the DC 12V 1.25A power adapter and 4 inside Re-chargeable batteries. The signals of MONTEST's battery on the lower right are described as below:

- **" ":** The power of battery is charging.
- **" ":** The power of battery is in full charging.
- **" ":** The battery is fault.

☞ 1. When the device stands by for about 39 minutes, it will sound two short **"beep".** After the two short "beep" sounds about 1 minute, the device will sound a long **"beep"** and shout down automatically.

2. When the battery power is lower than 5% just as " ", a warming sound **"beep"** will be heard each second. The sound will continue for 5 minutes, if you don't get the external power to instead of the internal battery power. The device will shout down immediately. We suggest you it is better to charge the batteries when they are in the lower status. (Before the device shout down, the device will save the last set values including Pattern No., Resolution, Ver. Frequency, P02 Blinking_BLK&WHT No. and Sync_MODE automatically.)

3.3 MENU Configurations

☞ The figures in this chapter are for **P01 640x480 @60** mode reference

After you power on the MONTEST, please press the **MENU** indicated key. The **MENU** configuration screen will be showed as below:

3.3.1 Tim configuration

Press the **Tim** indicated key, the Tim configuration screen will be showed as below:

- "▲": Adjust the **Resolution** and **Refresh Rate** with up values. (refer to Appendix A: MONTEST output signal specification chart)
- "▼": Adjust the **Resolution** and **Refresh Rate** with down values. (refer to Appendix A: MONTEST output signal specification chart)
- "◄","►": Switch between **Resolution** and **Refresh Rate** options.

3.3.2 Ptn configuration

Press the **Ptn** indicated key, the **Ptn** configuration screen will be showed as below:

- "▲": Switch the **Pattern** mode with up page. (refer to Appendix B: Pattern chart)
- "▼": Switch the **Pattern** mode with down page. (refer to Appendix B: Pattern chart)

P02 Blinking mode configuration:

Press the **set** indicated key to enter the black and white setting configuration as below (you can set the black and white blinking frequency (frames/value) here):

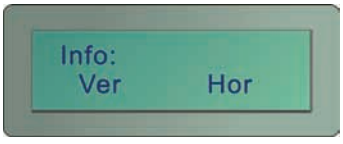
- "▲": Increase the **BLK** or **WHT** blinking frequency value. The value is up to 255.
- "▼": Decrease the **BLK** or **WHT** blinking frequency value.
- "◄","►": Switch between **BLK** and **WHT** options.
- "↵": Confirm the changed value.

☞ 1. Both **BLK/WHT** are the condensations for **Black/White**.
2. The bigger Value is set, the lower blinking frequency is supported.
3. When the value is 001, click "▼" indicated key to recycle the 255 value.

3.3.3 Sync configuration

Press the **Sync** indicated key, the Sync configuration screen will be showed as below:

a. INFO: Press the **INFO** indicated key, the **Info** configuration screen will be showed as below:



- **Hor** (Horizontal Frequency Option)**:** Under the **Sync/INFO** configuration, please press the "↵" to enter the **Info/Hor** configuration screen including: (Press "▲" and "▼" indicated key to select below items.)

Pixel Clock
H Sync Polarity
Hor Left Border
Hor Back Porch
Hor Sync Time
Hor Front Porch
H Right Border
Hor Sync Start
Hor Blank Time
Hor Blank Start
Hor Addr Time
Hor Total Time
Hor Frequency

- **Ver** (Vertical Frequency Option)**:** Under the **Sync/INFO** configuration, please press the "↵" to enter the **Info/Ver** configuration screen including: (Press "▲" and "▼" indicated key to select below items.)

Pixel Clock
Vertical Freq
Ver Total Time
Ver Addr Time
Ver Blank Start
Ver Blank Time
Ver Sync Start
V Bottom Border
Ver Front Porch
Ver Sync Time
Ver Back Porch
Ver Top Border
V Sync Polarity

b. MODE: Show you the option for output synchronization is **H/V** or **SOG** mode that setting mode will also be showed on the lower left of main screen.

3.3.4 Hky (Hot key) configuration

Press the **Hky** indicated key, the **Hky** configuration screen will be showed as below:

- **"O"**: Represent for **"Enable"**.
- **"X"**: Represent for **"Disable"**.
- **"R"**: Red component output.
- **"G"**: Green component output.
- **"B"**: Blue component output.
- **"Rev**": Pattern reverse
- **"Out**": Video Output control (On/Off).

Chapter 4 Troubleshooting

1. If there is no image when using the MONTEST, please ensure the following:

   a. If it is unable to switch on→there is a possibility of faulty battery or inferior battery. Please connect it with the transformer.
   b. If it is able to switch on but there is no image→
      - Lower the resolution or change the resolution and vertical frequency.
      - Please ensure the compatibility of Sync mode: H/V or SOG of the monitor.

2. Which should be done before using the MONTEST the first time?

   Before using the MONTEST the first time, charge it for more than 16 hours.

3. What is the Pattern Generator's function?

   a. Use to test and maintain studio equipment, such as monitor, cabling, and recording equipment.
   b. For a TV engineer or technician wants to test and calibrate a DTV monitor during repair.
   c. A home-theater user wants to get the best results out of the DTV equipment.
   d. A studio installer wants to test cables and equipment so that can get the best effect.
   e. For the DTV sets seller to show side by side comparisons of quality.
   f. For teacher to train their students about the latest DTV quality test technologies.
   g. To test a new DTV set whether compatibility with the ATSC standards.

4. How to save the changed setting values?

   The MONTEST will save the last changed setting values automatically.

5. When should I have to charge the battery?

   We suggest you to charge the battery only when the battery power indicator indicates a low battery.

Appendix A

VGA Output Signal Specification Chart:

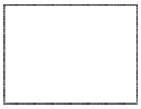
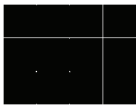
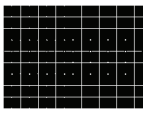
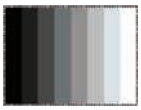
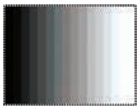
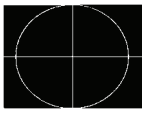
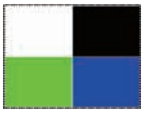
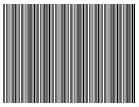
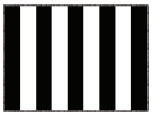
NO	Resolution	Refresh Rate (Hz)	Pixel Freq (MHz)	Sync Polarity	
				Hor	Ver
1	640x350	85	31.5	P	N
2	640x400	85	31.5	N	P
3	640x480	60	25.175	N	N
4	640x480	72	31.5	N	N
5	640x480	75	31.5	N	N
6	640x480	85	36	N	N
7	720x400	85	35.5	N	P
8	800x600	56	36	P	P
9	800x600	60	40	P	P
10	800x600	72	50	P	P
11	800x600	75	49.5	P	P
12	800x600	85	56.25	P	P
13	848x480	60	33.75	P	P
14	1024x768	60	65	N	N
15	1024x768	70	75	N	N
16	1024x768	75	78.75	P	P
17	1024x768	85	94.5	P	P
18	1152x864	75	108	P	P
19	1280x768	60 RB	68.25	P	N
20	1280x768	60	79.5	N	P
21	1280x768	75	102.25	N	P
22	1280x768	85	117.5	N	P
23	1280x960	60	108	P	P

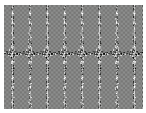
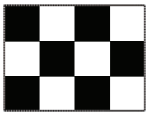
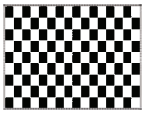
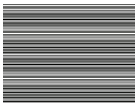
24	1280x960	85	148.5	P	P
25	1280x1024	60	108	P	P
26	1280x1024	75	135	P	P
27	1280x1024	85	157.5	P	P
28	1360x768	60	85.5	P	P
39	1400x1050	60 RB	101	P	N
30	1400x1050	60	121.75	N	P
31	1400x1050	75	156	N	P
32	1600x1200	60	162	P	P
33	1920x1200	60 RB	154	P	N
34	1280x800	60	83.5	N	P
35	1366x768	60	80	N	N
36	1440x900	60	106.5	N	P
37	1440x1050	60	125.25	N	N
38	1680x1050	60	146.25	N	P

RB: Reduced Blanking
P: Positive
N: Negative

Appendix B

Pattern chart:

1. FLAT 	2. Blinking	3. GRADUALLY	4. GRID_4x3 
5. GRID_16x12 	6. COLOR_GRID	7. COLORBAR_1	8. COLORBAR_2
9. COLORBAR_3	10. COLORBAR_4	11. GRAY_8 	12. GRAY_16 
13. GRAY_32	14. GRAY_64	15. DYNAGRAY	16. GRAY_1
17. COLORGRAY64	18. BWSWING	19. BW2SWING	20. WINDOW_1
21. WINDOW_2 	22. WINDOW_3	23. WINDOW_4 	24. VLINE_1 
25. VLINE_2	26. VLINE_3 	27. H Pattern_1	28. H Pattern_2

29. BLOCK_1 	30. BLOCK_4x3 	31. BLOCK_16x12 	32. HLINE_1 
33. HLINE_2	34. HLINE_3